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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/527,368	03/16/2000	HIROSHI OOTSUKA	15162/01600	2350

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EXAMINER	
MOYER, MICHAEL J	
ART UNIT	PAPER NUMBER
2675	10

DATE MAILED: 10/18/2002

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No.	Applicant(s)	
	09/527,368	OOTSUKA ET AL.	
	Examiner	Art Unit	
	Michael J. Moyer	2675	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *30 July 2002* .

2a)☒ This action is **FINAL**. 2b)☐ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-4 and 6-15* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1-4 and 6-15* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

11)☒ The proposed drawing correction filed on *30 July 2002* is: a)☒ approved b)☐ disapproved by the Examiner.

If approved, corrected drawings are required in reply to this Office action.

12)☐ The oath or declaration is objected to by the Examiner.

Priority under 35 U.S.C. §§ 119 and 120

13)☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☒ All b)☐ Some * c)☐ None of:

1.☒ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____ .

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

14)☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).

a) ☐ The translation of the foreign language provisional application has been received.

15)☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☒ Information Disclosure Statement(s) (PTO-1449) Paper No(s) *3, 5* .
4) ☐ Interview Summary (PTO-413) Paper No(s). _____ .
5) ☐ Notice of Informal Patent Application (PTO-152)
6) ☐ Other: .

FINAL DETAILED ACTION

Claim Rejections - 35 USC § 103

1. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

Claims 1, 6 and 15 are rejected under 35 U.S.C. 103(a) as being unpatentable over Inoue et al. (hereinafter "Inoue"), US 5,952,990, in view of Ono et al. (hereinafter "Ono"), US 6.075.508.

As pertaining to claims 1, 6 and 15, Inoue discloses A liquid crystal display (col. 4, lines 41-45 and Figures 1-2, 8, and 10, #11), device comprising: a display section which uses liquid crystal with a memory effect or memory effect characteristics (col. 2, lines 30-47); a driving section which drives the display section (col. 4, lines 41-67, col. 5, lines 1-40, col. 6, lines 30-67, col. 7, lines 1-62 and 66, col. 8, lines 1-67 and col. 9, lines 1-19 and Figures 1-2, #12-#13, Figures 8, 10, #6 and #9) and a control section which controls the driving section to write currently displayed information on the display section again at a specified time and control section controls the driving section to perform writing on part of the display section and thereafter to write currently displayed information on the display section again (col. 4, lines 41-67, col. 5, lines 1-40, col. 6, lines 30-67, col. 7, lines 1-62 and 66, col. 8, lines 1-67 and col. 9, lines 1-19 and Figures 1-2, #14, Figures 8, 10, #20).

As pertaining to claims 1 and 15, Inoue does not disclose a timer which begins counting when the information displayed on the display section is updated and the control section causes the driving section to rewrite currently displayed information on the display section upon the timer counting to a predetermined value.

As pertaining to claims 1 and 15, Ono discloses a display control apparatus in which a refresh driving and partial rewrite driving for updating the display. A timer counts a time during which a rewrite operation in the VRAM is not performed. When a predetermined count time has elapsed, the CPU sends a signal representing the continuous number of display lines to the addressing generator to perform refresh display (col. 2, lines 52-67; col. 3, lines 1-5; col. 7, lines 49-58).

At the time the invention was made, it would have been obvious to a person of ordinary skill in the art to combine the display control apparatus of Ono with Inoue.

The suggestion/motivation for doing so would have been to provide an LCD that is able to keep an image on the display or screen by using memory effect, thereby using less power, and a timer, in conjunction with memory effect, that is used to update the last image on the display when the timer has counted to a predetermined value. This process or method is great because it would save or at least allow the LCD to have a longer "life" or to be used longer because considerable power is saved by the use of memory effect and the timer. Furthermore, the information on the display or the speed at which the information can be displayed on the screen can also be increased due to the partial rewriting operation.

2. **Claim 2** is rejected under 35 U.S.C. 103(a) as being unpatentable over Inoue and Ono as applied to claim 1 above, and further in view of Huang, US 6,268,840.

As per **claim 2**, Inoue and Ono disclose a liquid crystal display device that uses ferroelectric liquid crystal, which exhibits a cholesteric phase (col. 3, lines 38-41). Inoue et al. also discloses that the use of ferroelectric is advantageous because the response speed is very fast and that the liquid crystal molecules are bistable (col. 4, lines 27-30). Inoue et al. further discloses that the liquid crystal display device includes a display that uses memory effect or memory effect characteristics (col. 2, lines 30-47 and Figure 1-2, 8 and 10, #11), drivers

(Figures 1-2, #12-13, and Figures 8 and 10, #6 and #9), controllers (Figures 1-2, #14, and Figures 8, 10, #20) and a power controller (Figures 1-2, #15).

Inoue and Ono do not disclose the use of chiral nematic liquid crystal in the liquid crystal display device.

Huang discloses a visual display that uses bistable chiral nematic liquid crystal that exhibits a cholesteric phase (col. 1, lines 17-22, col. 1, lines 30-31).

At the time the invention was made, it would have been obvious to a person of ordinary skill in the art to combine the bistable chiral nematic liquid crystal of Huang with Inoue and Ono.

The suggestion/motivation for doing so would have been to provide an apparatus that is better suitable to use bistable chiral nematic liquid crystal than ferroelectric. Most displays that use a liquid crystal, which exhibit a cholesteric phase typically use chiral nematic liquid crystal. With the use of chiral nematic liquid crystal and memory effect, the liquid crystal device would not have to continuously refresh or update itself. Furthermore, when using chiral nematic liquid crystal, it takes a lot less time to refresh or update the screen. Thus the art of saving power is maximized. It is known that chiral nematic liquid crystal is usually used for large display apparatus's, but to be able to expand this idea to smaller display apparatus such as personal digital assistant's (PDA's) and laptop would very marketable since many consumers now buy PDA's and laptop for personal and business usage. Claim 2 is dependent on claim 1 and is rejected on the same basis and what is stated above.

3. **Claim 3-4** are rejected under 35 U.S.C. 103(a) as being unpatentable over Inoue and Ono as applied to claim 1 above, and further in view of Guscott et al. (hereinafter "Guscott"), US 4,728,936.

As per **claims 3-4**, Inoue and Ono disclose a liquid crystal display, which includes a display that has memory effect or memory effect characteristics (col. 2, lines 30-47 and Figure

1-2, 8 and 10, #11), drivers (Figures 1-2, #12-13, and Figures 8 and 10, #6 and #9), controllers (Figures 1-2, #14, and Figures 8, 10, #20).

Inoue and Ono do not disclose: a) as pertaining to claim 3, a detecting section which detects a contact action with the screen and having a control section that controls the driving section to write currently displayed information on the display again when a contact is detected, b) as pertaining to claim 4, a touch sensor.

Guscott discloses: a) as pertaining to claim 3, an apparatus that is a touch pad display device (col. 3, lines 8-10), when the display is touched a set of displayed symbols is produced or reproduced (col. 1, lines 58-68, col. 2, lines 1-20 and col. 4, lines 40-48), b) as pertaining to claim 4, it is inherently known that a device that is either a touch panel or touch screen or has a touch pad contains a touch sensor matrix or a touch sensitive matrix (col. 2, lines 21-26).

At the time the invention was made, it would have been obvious to a person of ordinary skill in the art to combine the touch pad display device of Guscott with Inoue and Ono.

The suggestion/motivation for doing so would have been to provide a liquid crystal display device that can be touched to either input information or to obtain information. Furthermore, with the use of memory effect, a user is able to write or obtain information via the touch pad and the information will not be distorted or ruined when the display is touched. This idea is already used for personal computers, laptops and PDA's that have screen savers. Claims 3-4 are dependent on claim 1 and are rejected on the same basis and what is stated above.

4. **Claims 7-9 and 12-13** are rejected under 35 U.S.C. 103(a) as being unpatentable over Inoue and Ono as applied to claim 1 above, and further in view of Chikako, JP 08-035759.

As per **claims 7-9 and 12-13**, Inoue and Ono disclose a liquid crystal display, which includes a display that has memory effect or memory effect characteristics (col. 2, lines 30-47

and Figure 1-2, 8 and 10, #11), drivers (Figures 1-2, #12-13, and Figures 8 and 10, #6 and #9), controllers (Figures 1-2, #14, and Figures 8, 10, #20) and a power controller (Figures 1-2, #15).

Inoue and Ono do not disclose: a) referring to **claim 7**, explicitly where the power originates from, b) referring to **claim 8**, a secondary battery and an external device that is able to recharge the secondary battery by use of terminals, c) referring to **claim 9 and 13**, the external device is disclosed to be refrigerator and d) referring to **claim 12**, the liquid crystal display device is functionally able to be attached and detached from the an external device.

Chikako discloses: a liquid crystal display device (paragraph 0014), a) as pertaining to **claim 7**, an electric power source (paragraph 0010), b) as pertaining to **claim 8**, a device is able to recharge a battery with the use of AC power (paragraph 0010), c) as pertaining to **claims 9 and 13**, an external device as refrigerator (paragraph 0001), d) as pertaining to **claim 12**, a device that is attachable and detachable to an external device (paragraphs 0018, 0021 and 0026).

At the time the invention was made, it would have been obvious to a person of ordinary skill in the art to combine the liquid crystal display device, that has an electric power source, it is able to recharge a secondary battery from the electric power source that originates from a refrigerator and is able to be attached and detached from a refrigerator of Chikako with Inoue and Ono.

The suggestion/motivation for doing so would have been to provide an apparatus that can used for displaying, writing or scanning and is capable of functioning with or without the electric power from a refrigerator. Also, this apparatus is able to function away from the refrigerator as a stand alone unit, thus allowing it to used much like a personal digital assistant (PDA) or a laptop. The future of technology is only getting better and many consumers like devices that function like computers but a fraction of the size and the kitchen is a perfect place

since it's one of rooms in a house in which everybody visits at a consistent basis. Claims 7-9 and 12-13 are dependent on claim 1 and are rejected on the same basis and what is stated above.

5. **Claims 10-11** are rejected under 35 U.S.C. 103(a) as being unpatentable over Inoue, Ono and Chikako as applied to claims 1 or 7 above, and further in view of Callahan, Jr. et al. (hereinafter "Callahan"), US 5,726,676 and Nakanishi, US 6,323,851 B1.

As per **claims 10-11**, Inoue and Ono disclose a liquid crystal display, which includes a display that has memory effect or memory effect characteristics (col. 2, lines 30-47 and Figure 1-2, 8 and 10, #11), drivers (Figures 1-2, #12-13, and Figures 8 and 10, #6 and #9), controllers (Figures 1-2, #14, and Figures 8, 10, #20) and a power controller (Figures 1-2, #15) and Chikako discloses an electric power source (paragraph 0010).

Inoue, Ono and Chikako do not disclose: a) as pertaining to **claim 10**, a control section that stops the supply of electric power after writing, b) as pertaining to **claim 11**, a booster circuit that raises the voltage and applies it to the display section and a control section that stops the supply of electric power to the booster circuit.

Callahan discloses signal driver circuit for a liquid crystal display: a) as pertaining to claims 10-11, a power standby mode, in which the signal driver controls the data to be written to the display and after the data has been delivered powers down (col. 5, lines 11-15, col. 6, lines 35-44) and Nakanishi discloses a liquid crystal display device: b) as pertaining to claim 11, a booster circuit that raises the voltage to drive the LCD (col. 1, lines 13-29, col. 4, lines 34-42 and Figure 2, #210).

At the time the invention was made, it would have been obvious to a person of ordinary skill in the art to combine the signal driver circuit of Callahan and the booster circuit of Nakanishi with Inoue, Ono and Chikako.

The suggestion/motivation for doing so would have been to provide a liquid crystal display device that is able to conserve power more efficiently. As pertaining to claim 10, once the drivers write or obtain information to the display, the drivers will power down. With the help of memory effect or memory effect characteristics the information is kept on the display for a predetermine amount of time. Thus, the device does not have to keep powering up the drivers to refresh or rewrite the screen. As pertaining to claim 11, to incorporate a booster circuit would be beneficial. With the help of a booster circuit the drivers are able to write, rewrite, refresh or obtain information to the display much faster then going through a process in which the drivers have to continuously find or generate a certain voltage or voltages to drive the display. Also by incorporating the idea of powering down or inactivating the booster circuit after the drivers have feed the information to the display and using memory effect or memory effect characteristics the drivers would not have to be powered up or kept on all the time to keep the information displayed. Thus, saving power. Claims 10-11 are dependent on claims 1 and 7 and are rejected on the same basis and what is stated above.

6. **Claim 14** is rejected under 35 U.S.C. 103(a) as being unpatentable over Inoue and Ono as applied to claim 1 above, and further in view of Adler et al. (hereinafter "Adler"), US 6,342,901 B1.

As per **claim 14**, Inoue and Ono disclose a liquid crystal display, which includes a display that has memory effect or memory effect characteristics (col. 2, lines 30-47 and Figure 1-2, 8 and 10, #11), drivers (Figures 1-2, #12-13, and Figures 8 and 10, #6 and #9), controllers (Figures 1-2, #14, and Figures 8, 10, #20).

Inoue and Ono do not disclose a liquid crystal display device that is able to get a calendar, recipe, picture and data from outside, assuming that outside refers to information not already stored in memory within the device.

Adler discloses a portable device that is networked to remote or main processor that is able to obtain different types of information, whether it be email, a calendar, a picture or anything else (col. 4, lines 29-33, col. 4, lines 46-56, col. 6, lines 17-25) and is able to scan in data (col. 27, lines 56-67 and col. 28, lines 1-18 and Figure 24, #2416, Figure 25, #2510).

At the time the invention was made, it would have been obvious to a person of ordinary skill in the art to combine the portable device of Adler et al. with Inoue and Ono.

The suggestion/motivation for doing so would have been to provide one single device that is able to receive and store information from different entities. To have a device that is able to receive and store the information of food contents, i.e. dates, a calendar, email, download images, i.e. pictures, recipes etc. is very useful in today's society. Also, by making this device portable it is very practical because it allows a person the flexibility of receiving and storing information within a close proximity while in the kitchen or around the house, much like a PDA, but not as cumbersome as a personal computer or laptop. Claim 14 is dependent on claim 1 and is rejected on the same basis and what is stated above.

Response to Arguments

7. Applicant's arguments filed 30 July 2002 have been fully considered but they are not persuasive. On page 8 of REMARKS, titled 35 U.S.C 112 Rejection, the examiner has withdrawn the 35 U.S.C 112 rejection because the claim 8 can now be understood without any hesitation. On page 8 and 9 of REMARKS, titled 35 U.S.C 102(e) Rejection, paragraphs 2-4, the examiner agrees that Inoue does not teach the newly amended claims 1 and 15, in which a timer begins counting when currently displayed information is updated and that the currently displayed information is updated after the timer counts to a predetermined value, however, Ono does teach this limitation as stated above. Therefore, Inoue in combination with Ono, teach the new amended claims and limitation. In addition, on page 9-11 of REMARKS, titled 35 U.S.C

103 Rejection, the remaining claims have been rejected with same rejections as before in now they only differ because of the new reference used, Ono, is now cited to be in combination with Inoue.

Conclusion

8. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.

a) Aratani et al., US 5,481,274. Aratani teaches a display control device, in which partial rewrite and refreshing are used.

b) Matsuzaki et al., US 5,926,159. Matsuzaki teaches a display control apparatus and method therefore capable of limiting an area for partial rewriting.

c) Shigeeda, US 5,802,55. Shigeeda teaches a computer system including a refresh controller circuit having a row address strobe multiplexer and associated method.

THIS ACTION IS MADE FINAL. Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the mailing date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to **Michael J. Moyer** whose telephone number is **(703) 305-2099.** The examiner can normally be reached Monday-Friday, 8:30am-5:30pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, **Steven Saras**, can be reached at **(703) 305-9720.**

Any response to this action should be mailed to:

Commissioner of Patents and Trademarks

Washington, D.C. 20231

or faxed to: (703) 872-9314 (for Technology Center 2600 only)

Hand-delivered responses should be brought to Crystal Park II, 2121 Crystal Drive, Arlington, VA, Sixth Floor (Receptionist).

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the **Technology Center 2600 Customer Service Office whose telephone number is (703) 306-0377.**

Michael J. Moyer
Examiner
Art Unit 2675

MJM
October 13, 2002

STEVEN SARAS
SUPERVISORY PATENT EXAMINER
TECHNOLOGY CENTER 2600